

What is claimed is:

1. A radio communication system, comprising:

a radio receiver including an interference canceller
5 configured to generate a replica of a received signal and remove
an interference signal from the received signal, and

a frequency offset estimator configured to estimate a carrier
frequency offset between a carrier frequency of the interference
signal and a carrier frequency of a desired signal included in the
10 received signal; and

a radio transmitter including a frequency controller
configured to adjust a carrier frequency of a transmitted desired
signal to the carrier frequency of the interference signal based
on the carrier frequency offset received from the radio receiver.
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2. A radio communication system, comprising:

a radio receiver including an interference canceller
configured to generate a replica of a received signal and remove
an interference signal from the received signal,

20 a phase difference measurement unit configured to measure
a phase difference between a desired signal and the interference
signal, and

an interference quality measurement unit configured to
measure an interference reception quality indicating an influence
25 of the interference signal on the received signal; and

a radio transmitter including a controller configured to
control at least one of a phase of a transmitted desired signal
and a transmission power of the transmitted desired signal based
on a measured phase difference and a measured interference
30 reception quality.

3. A radio station, comprising:

an interference canceller configured to generate a replica
of a received signal and remove an interference signal from the
35 received signal;

a frequency offset estimator configured to estimate a carrier
frequency offset between a carrier frequency of the interference

signal and a carrier frequency of a desired signal included in the received signal; and

an information signal generator configured to generate an offset information signal based on the carrier frequency offset.

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4. The radio station of Claim 3, further comprising:

a coherent detector configured to synchronously detect the received signal using the carrier frequency of the interference signal as a reference frequency; and

10 a rotation speed measurement unit configured to measure a rotation speed of the desired signal included in a synchronously detected received signal; wherein

the frequency offset estimator estimates the carrier frequency offset based on the rotation speed.

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5. The radio station of Claim 3, further comprising:

a quality measurement unit configured to measure a reception quality of the received signal, wherein

20 the information signal generator makes a determination of whether to control the carrier frequency based on a measured reception quality of the received signal, and decides whether to generate the offset information signal or decides information included in the offset information signal based on a determination result.

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6. The radio station of Claim 5, further comprising:

a threshold decision unit configured to decide a threshold of the reception quality used for the determination based on a modulation method for the received signal, wherein

30 the information signal generator makes the determination by comparing the measured reception quality with the threshold of the reception quality.

7. A radio station, comprising:

35 a frequency controller configured to adjust a carrier frequency of a transmitted desired signal to a carrier frequency of an interference signal based on a carrier frequency offset

between the carrier frequency of the interference signal and a carrier frequency of a desired signal, and estimated by a radio receiver.

5 8. The radio station of Claim 7, further comprising:

a baseband modulator configured to modulate a transmitted data to be included in the desired signal into a baseband signal, wherein

10 the frequency controller adjusts the carrier frequency of the transmitted desired signal to the carrier frequency of the interference signal by rotating a phase of the baseband signal at an angular speed in accordance with the carrier frequency offset.

9. The radio station of Claim 7, further comprising:

15 a baseband modulator configured to modulate a transmitted data to be included in the desired signal into a baseband signal; and

a frequency converter configured to convert a center frequency of the baseband signal using a reference frequency to the desired signal; wherein

20 the frequency controller adjusts the carrier frequency of the desired signal to be transmitted to the carrier frequency of the interference signal by controlling the reference frequency based on the carrier frequency offset.

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10. A radio station, comprising:

a controller configured to control at least one of a phase of a transmitted desired signal and a transmission power of the transmitted desired signal based on a measured phase difference between a desired signal and an interference signal included in a received signal in a radio receiver, and a measured interference reception quality indicating an influence of the interference signal on the received signal.

35 11. The radio station of Claim 10, wherein the controller controls at least one of the phase of the transmitted desired signal and the transmission power of the transmitted desired signal based on

the relationship among a phase difference, an interference reception quality, and a minimum inter-signal point distance of the received signal, and the measured phase difference and the measured interference reception quality.

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12. The radio station of Claim 11, wherein the controller controls at least one of the phase of the transmitted desired signal and the transmission power of the transmitted desired signal to maximize
10 the minimum inter-signal point distance.

13. The radio station of Claim 11, wherein the controller determines a largest interval with a maximum average value of the minimum inter-signal point distance from phase difference intervals each
15 having a predetermined width, and controls the phase of the transmitted desired signal to an intermediate value of the phase difference in the largest interval.

14. The radio station of Claim 11, wherein the controller controls
20 the transmission power of the transmitted desired signal to maximize the minimum inter-signal point distance in a phase difference interval having a predetermined width.

15. A radio communication method, comprising:
25 estimating a carrier frequency offset between a carrier frequency of an interference signal and a carrier frequency of a desired signal included in a received signal; and
 adjusting a carrier frequency of a transmitted desired signal to the carrier frequency of the interference signal based on the
30 carrier frequency offset.

16. The radio communication method of Claim 15, further comprising:
 measuring a reception quality of the received signal; and
 determining whether to adjust the carrier frequency based
35 on a measured reception quality of the received signal.

17. A radio communication method, comprising:

generating a replica of a received signal and removing an interference signal from the received signal;

measuring a phase difference between a desired signal and the interference signal;

5 measuring an interference reception quality indicating an influence of the interference signal on the received signal; and

controlling at least one of a phase of a transmitted desired signal and a transmission power of the transmitted desired signal based on a measured phase difference and a measured interference
10 reception quality.